Welcome

PrivateEye is a viewer for Sprite, DrawFile, JPEG, ArtWork, GIF and PNG images. It is freeware.

It requires RISC OS 3.6 or later and a Boot sequence with the Nested Wimp and 32-bit Shared C Library.

Major Features

- Displays Sprites, DrawFiles, JPEGs, ArtWorks, GIFs and PNGs.
- Any number of images may be loaded simultaneously.
- Save the display image - i.e. convert JPEGs, GIFs, PNGs to Sprite.
- Inbuilt JPEG "cleaning."
- Inbuilt JPEG lossless rotation.
- Full control over display quality.
- Interactive help (use it!)

PrivateEye

Image Viewer
by David Thomas, © 1999–2006
version 2.00 (22 Dec 2006)

Supported Image Formats

Where necessary, images are converted into the nearest RISC OS-friendly format. In practice, this means that GIFs, PNG and (optionally) JPEGs are converted into Sprite format.

The result of this conversion is referred to as the *display* image. Operations such as saving and rotation operate only on the display image.

Sprites

- All sprites which can be handled by the OS are loaded and displayed.
- Files containing multiple sprites will only show the first sprite in the file.

DrawFiles

- Uses the DrawFile module to display DrawFiles.
- Adds a border of 16 OS units in display.

JPEGs

- Uses SpriteExtend 0.99 or later to display JPEGs. This allows images larger than available free memory to be displayed by decompressing them on the fly.
- Progressive JPEGs are supported. PrivateEye has a built-in version of *jpegtran* which automatically converts JPEGs to the baseline format that SpriteExtend is happy with.
- May be optionally converted to Sprite.

ArtWorks

- Uses the ArtWorks rendering modules for display.
- *AWViewer* must have been seen by the Filer for this to work. Note that ArtWorks itself won't do: it must be AWViewer. This shouldn't be a problem as all RISC OS machines since the Risc PC have been shipped with AWViewer on the hard disc.

GIF

- Loads and decompresses the GIF into a Sprite.
- Animated GIFs will only show the first frame of the image.

PNG

- Loads and decompresses the PNG into a Sprite.

FFG Converter Formats

- If the file type is not recognised PrivateEye will use the Computer Concepts' FFG protocol to load images it does not natively understand. For this to work you must have *TransFSI*, or similar, installed.

The Viewer Window

The **viewer window** is PrivateEye's main interface.

Loading Images

To view an image, drag it from a directory display to the icon bar icon. You can load any number of images, each will be shown in its own viewer window.

To re-use an existing viewer window drag the image into that viewer window.

If the image does not have the correct file type, then an auto-detection routine will attempt to identify the correct type and set it.

Focus

When you click in a viewer window, it gains the input focus. You can then use the keys mentioned below to scroll, scale, etc.

Scrolling Around

If parts of the image are not visible, you can scroll around either by dragging within the window using SELECT (the grab tool) or by using the cursor keys.
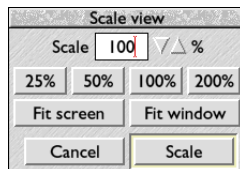
On suitable OS versions, the mouse scroll wheel may also be used to scroll vertically.

You can scroll to a specific point by holding Ctrl and clicking with SELECT at the desired position.

Scaling The View

You may need to scale the image to fit the screen, or to view an area in detail. There are a number of controls for this.

First is the **Scale view** dialogue, available from the viewer menu and also by pressing F11. The default scale of 100% shows the image at a 1:1 pixel ratio.

There are standard preset scales of 25%, 50%, 100% and 200%. **Fit screen** fits the view to the size of the screen. **Fit window** fits the image to the current size of the viewer window. Click **Scale** to make the scale level take effect.
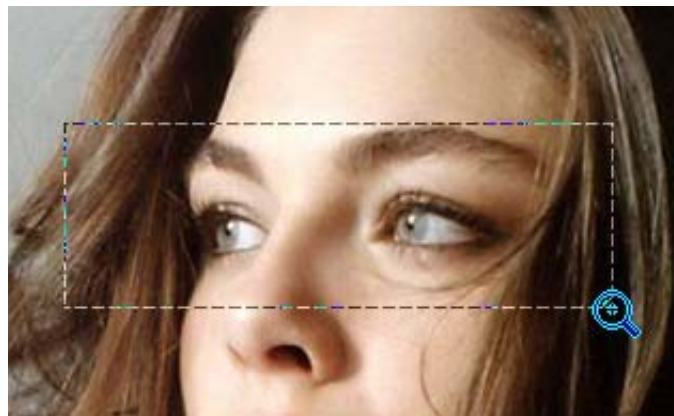
With the **Scale view** dialogue open, you may also use the Up and Down keys to 'bump' the scale by 5%. This takes immediate effect. Shift may be used to increase the size of the steps to 10%. (Page Up and Page Down perform the same function.)

Secondly, there are a number of keyboard controls. Ctrl W and Ctrl Q zoom in and out respectively. Ctrl T toggles between the previously selected and the current scale level. Ctrl D resets the scale to 100%.

Thirdly, there are mouse controls. A Shift SELECT click will zoom in to the desired point. Shift ADJUST click does the same but zooms out. If multiple steps are configured then a zoom effect will be used.

Dragging ADJUST in the viewer window drags out a zoom box. The area of the image highlighted will be scaled to fit the window.

Moving Between Files

Pressing SPACE, or alternatively Page Down, will move the viewer onto the next file in the directory. Page Up moves to the previous file.

The order of the files in the directory determines what is previous / next.

Rotation

Rotate and transform functions are only available for Sprites and JPEGs.

The **Rotate** dialogue can rotate Sprites and JPEGs in multiples of 90 degrees. It can also flip, transpose and transverse.

Rotation and transformation of JPEGs is lossless. That means it does not perform a full decompress-transform-compress cycle which would result in quality degradation. Instead it uses jpegtran's lossless rotation code.

Ctrl O opens the **Rotate** dialogue. The dialogue is straightforward to use. Simply drag the thumbnail image. It will spin around its axis. As you rotate the image it will snap to the nearest 90 degrees. Release when it appears in the desired orientation. Click **Rotate** to effect the rotation.

Dragging with ADJUST behaves similarly, except that it performs an initial horizontal flip. This allows all possible flips and rotations to be chosen.

The icon in the top left hand corner of the window shows which rotation, or transformation, will occur.

The equivalent keypresses are Ctrl L and Ctrl R to rotate left and right respectively and Ctrl H and Ctrl V respectively to perform horizontal and vertical flips.
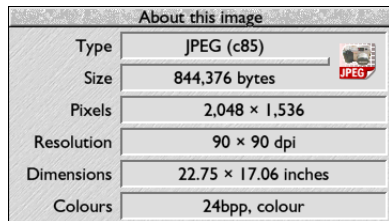
Saving

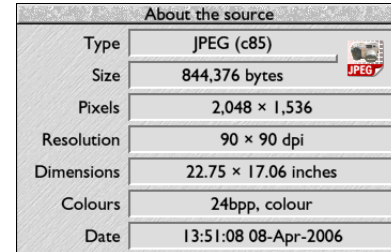F3 opens the save dialogue. This saves a copy of the display image.

Image Information

Since PrivateEye has both display and source images, there are two information windows.

Image Info is available with Shift F1 and looks like this:

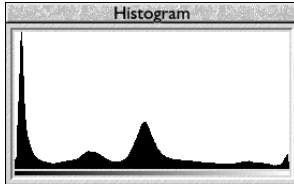Source Info is available with Ctrl F1 and looks like this:

Note that source info has an extra **Date** field.

The information windows will often display the same information. However, if a change is made (e.g. a rotation) or a change in the image was necessary to load it (e.g. a format conversion) then the information may differ.

For example, Sprite files appear to be 4 bytes longer when loaded than when on disc. This is because the in-memory structure of a sprite *is* 4 bytes longer.

Histogram Window

The histogram window is only available for 8bpp grey and 32bpp colour bitmap formats. If you want to use this window with JPEGs then enable **Convert to sprite** *in the JPEG choices.*

The **Histogram** window displays a luminance histogram of the image. This is a graph of the frequencies of the image's luminance.

Low levels at the extremities of the graph indicate an absence of detail in the dark and light ranges.

New views

Should you need to view an image at two different scales, or view multiple different parts of a single large image, you can create a new view by pressing Ctrl N. This opens up a new view of the same image.

New views require no additional memory.

Embedding

Dragging with Shift Ctrl SELECT inside the viewer window allows you to embed the viewer window inside another window.

To un-embed a window perform the same action again but release the drag over the icon bar.

This uses a feature of the Nested Wimp intended for including, for example, Java plugins inside web browser windows.
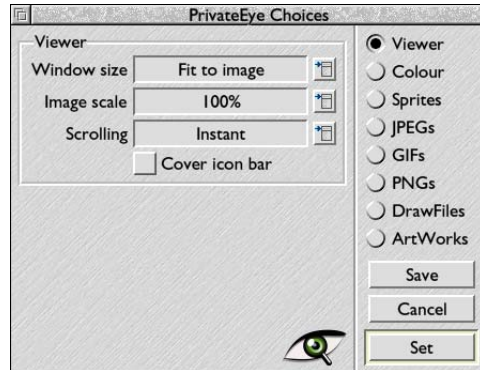
Delete

Ctrl K deletes the currently viewed image. It uses a Filer_Action window to perform the deletion.

The Choices Window

The Choices window is available from the icon bar menu. It provides control over a number of different aspects of PrivateEye's behaviour.

Viewer Choices

Window size controls the size of the viewer window. **Fit to image** sizes viewer windows to fit exactly the contained image. **Fit to screen** makes viewer windows *at least* the size of the screen.
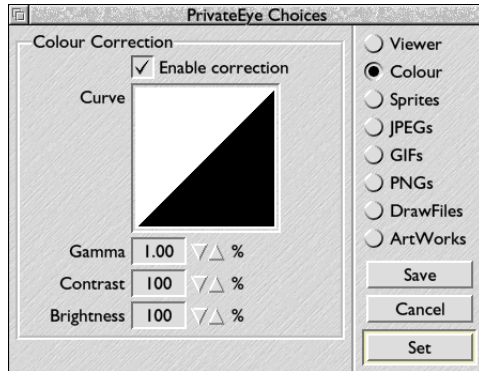
Image scale controls the image scale applied when a new image is loaded. The choices are much the same as those available from the **Scale view** dialogue except for **Preserve** which re-uses the previously selected scale, or 100% if a new viewer window is opened.

Scrolling controls how many steps are used when scrolling and zooming. The more steps you configure the smoother the effect will be. However, too many steps can also slow down if the image is complex to redraw.

PrivateEye tries to keep the viewer window in the same position when moving between images. **Cover icon bar** controls whether it will avoid obscuring the icon bar with viewer windows. If not set, viewer windows will be made smaller and positioned to avoid the icon bar.

Colour Choices

Colour Correction provides a simple gamma, contrast and brightness control which affects the whole desktop.

Enable correction turns on the automatic setting of these values when PrivateEye is loaded.
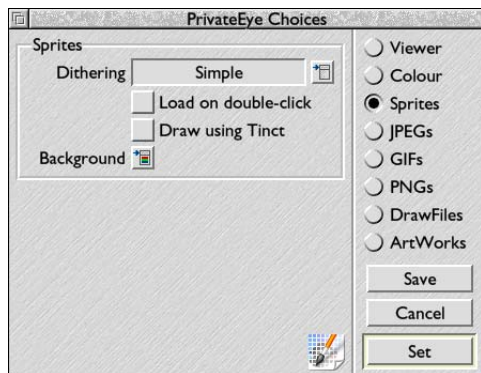
Common File Format Choices

Some common choices exist for every file format. To avoid repetition, they are described here in advance.

Load on double-click controls whether the respective format will be loaded when double-clicked on in a directory display.

Background sets the background colour which is used for masked images and when in "fit to screen" mode.
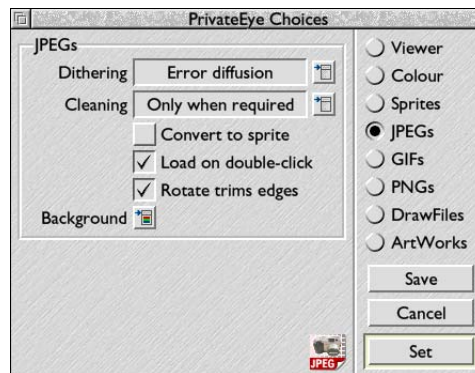
Sprite Choices

Sprite choices will affect any file format which is converted into Sprite format for display (i.e. GIFs, PNGs, JPEGs).

Dithering can be set to **None** or **Simple. Simple** uses a stipple pattern to better approximate unavailable colours.

Draw using Tinct will draw the sprite, where possible, using the Tinct module. Tinct is supplied with Netsurf. Tinct offers higher quality diffusion than the regular OS sprite plotting routines.
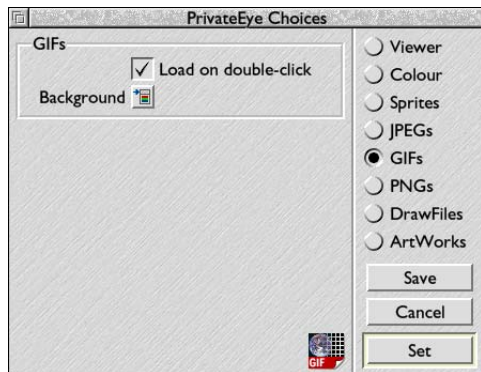
JPEG Choices

Dithering can be set to **None**, **Simple** and **Error diffusion**.

Normally JPEGs are retained in memory in their native format. If this is not desirable, perhaps to speed up redraw or to be able to use the Histogram window, then enable **Convert to sprite**. The JPEG will be decompressed to an 8bpp grey or 32bpp colour Sprite.
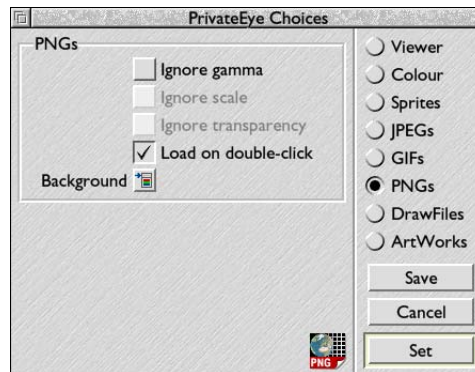
The lossless JPEG rotation code cannot transform boundary blocks. Enabling **Rotate trims edges** will cause those boundary blocks to be discarded in rotation.
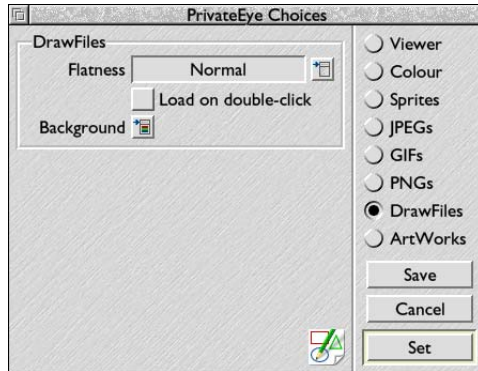
GIF Choices

See *Common File Format Choices.*

PNG Choices

Ignore gamma makes the PNG loader skip the *gAMA* chunk.

Ignore scale and **Ignore transparency** are disabled in the present version.

DrawFile Choices

ArtWorks Choices

Flatness can be set to **Coarse**, **Normal**, **Best** or **Automatic**. It controls how many lines bezier curves are broken down into for rendering.

The DrawFile module's automatic setting does not always seem to work well. This control is provided to allow the user to force a high-quality render when viewing at high zoom levels.

Quality controls the famous ArtWorks variable quality setting. It offers **Outline**, **Simple**, **Normal** and **Anti-aliased**.

Control Summary

Mouse Controls

	SELECT ....ADJUST
none	Gain focus................Gain focus
Shift	Zoom in to point..Zoom out from point
Ctrl	Scroll to point
Drag	Grab ....Zoom to box
Shift Ctrl	Embed viewer window

Keyboard Controls

Viewer windows accept the input focus. These are the keys you can use whilst the window has the focus:

Up.......Scroll up
Down.......Scroll down
Left.......Scroll left
Right.......Scroll right
Ctrl Z.......Scroll somewhere random

Ctrl W.......Zoom in
Ctrl Q.......Zoom out
Ctrl T.......Toggle to previous zoom level
Ctrl D.......Zoom to 100%

F11.......Open Scale dialogue

Ctrl L.......Rotate left
Ctrl R.......Rotate right
Ctrl H.......Horizontal flip
Ctrl V.......Vertical flip
Ctrl O.......Open Rotate dialogue

Ctrl C.......Copy to clipboard

Ctrl N.......New view

F3.......Open Save dialogue

Page Down & SPACE
.......Move to next file in directory
Page Up.......Move to previous file

Ctrl F2 & Esc.......Close viewer window

Esc.......Cancel drag operation

Ctrl K.......Kill (delete file)

F1.......Start Interactive Help
Shift F1.......Open Image Info window
Ctrl F1.......Open Source Info window

History

Version 2.00 (22 Dec 2006)

- **Viewer windows can now gain the input focus.** Many key-activated functions have been added.
- **Viewer windows can fill the whole desktop.** The image is shown centred within the viewer.
- **Rotation.** Sprites and JPEGs can now be transformed with any combination of 90 degree rotations and horizontal flips. A new dialogue shows an interactive preview of the rotation.
- **Progressive JPEGs can now be loaded and displayed.** JPEGs are now optionally integrity-checked when loaded. If they fail the check (wrong number of tables, etc.) then they're passed through an internal version of *jpegtran*. This turns them into baseline JPEGs which SpriteExtend is happy to plot.
  Any errors from libjpeg are captured and shown to the user.
- **Histogram info window added.** Shows a luminance histogram.
- **New views.** Multiple views on the same image.
- Smooth scrolling on cursor keypresses. Smooth scroll-to-click. Smooth scaling. Configurable number of steps.

- Stepping through files in the same directory (SPACE, Page Up, Page Down). This was actually in the previous version, but was hidden behind a weird keypress.
- Tinct support. Uses the Sprite dithering setting: 'Simple' is mapped to 'Error diffusion.'
- Automatically sets the file type of recognised but untyped files.
- Added FFG support (can load images using TransTIFF, TransFSI, etc.)
- Image info window split into two separate info windows: one for source and one for display. Both now display their values using comma-separated numbers. Physical image size field added.
- Mouse wheel support. Viewer windows will scroll up/down.
- Pressing Up/Down in the scale dialogue bumps the scale by +/-5%. Also pressing Shift (aka Page Up, Page Down) can be used to make it go faster (10%).
  These values can be configured in the Choices file by setting scale.step and scale.mult.
- "Fit to screen" scale. "Fit to window" scale. Default scale can be configured.
- New icon. Including `!Sprites11` versions.
- Title bar displays percentage scale and number of views.

Acknowledgements

ArtWorks support based on ArtToSpr with thanks to Tony Houghton.

GIF LZW decoding is based on code by Steven A. Bennett.

PNG decoding uses libpng:

Copyright © 1998-2004 Glenn Randers-Pehrson.
Copyright © 1996-1997 Andreas Dilger.
Copyright © 1995-1996 Guy Eric Schalnat, Group 42, Inc.

...and zlib:

Copyright © 1995-2004 Jean-loup Gailly and Mark Adler.

JPEG decoding uses libjpeg:

This software is based in part on the work of the Independent JPEG Group.

Copyright © 1991-1998, Thomas G. Lane.

Thanks to Richard Siggee for testing.

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Contacting the Author

If you have any comments, bug reports or suggestions for future versions then you can contact me at **dave@davespace.co.uk**.

If you have a question, then please check it has not already been answered in this documentation or the interactive help before mailing.

Please remember when reporting bugs to describe **exactly** what you were doing when the bug occurred and the version number.